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AUTHOR Lumsden, Alec; Ross, Michael
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ABSTRACT

Previous research has shown that individuals take more responsibility for group outcomes than other participants attribute to them. To assess whether the interactive component of the group endeavor is the locus of this self-centered bias, group members (N=80) worked on analogies either separately in coaction groups or together in interaction groups. Subsequently, each member of the dyad was informed that his group had either succeeded or failed at the task. Attributions of responsibility for the final score were most self-centered in successful coaction groups. A possible explanation for this outcome may be that the interaction between group members provided a form of reality-testing. Findings suggest that group structure may alter the effects of performance level on attributions of responsibility. (Author/KMF)

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Determinants of Self-Centered Judgments of Responsibility in Group Settings

Alec Lumsden and Michael Ross

University of Waterloo

Waterloo, Ontario

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People engage in joint activities in social and business settings. For many of these ventures, there is no explicit assignment of responsibility for outcomes among the participants. When such assessments are made public, however, they often reveal disagreement as to how responsibility should be divided. Previous research has identified two factors that influence allocations of responsibility within groups: the target of the attribution and the nature of the outcome.

Target of the attribution

Ross and Sicoly (1979) examined judgments of responsibility made by people engaged in joint endeavors. The groups studied included married couples, athletic teams, and ad hoc dyads formed in the laboratory. Ross and Sicoly (1979) found that individuals awarded more responsibility for group products to themselves than other participants attributed to them. It was argued that this self-centered bias in attribution was caused by memory differences among the participants: because of their personal involvement, subjects remembered best their own contributions to the group products.

As outlined by Ross and Sicoly (1979), the memory-availability hypothesis suggests that participants in a joint endeavour recall a self-centered sample of inputs to the task and then extrapolate from this biased sample to make similarly biased inferences about the population of inputs (c.f., Tversky and Kahneman, 1973). The availability

hypothesis posits no particular biasing mechanism beyond the estimate of the population proportions. To the contrary, Ross and Sicoly's data suggest that the content of recall is quite accurate. It is simply that each person recalls a disproportionate number of his or her own contributions.

In a recent paper, Ross (in press) offered the interaction hypothesis as a possible alternative to the memory-availability interpretation of the self-centered bias in responsibility judgments. One way to think about the interaction problem in a group context is to consider a joint endeavor between A and B. The final product may reflect A's unique contribution, B's unique contribution, and an emergent contribution, AB, that would not have occurred in the absence of either A or B. Because the interactive element requires the inputs of both participants, it may be appropriate that each accepts full credit for AB. Thus, if A is asked to indicate his degree of responsibility for the final product he may take credit for A and AB; similarly B may take credit for B and AB. As a result, the total amount of responsibility to be distributed exceeds 100 percent. Indeed, there are instances in which each participant should possibly accept 100 percent of the credit for a joint outcome: For example, how do you divide responsibility for the decision to get married when, if either partner says no, there is no marriage?

The interaction hypothesis raises two quite separate

issues in the group context:

(1) Perhaps what has been labelled a self-centered bias in responsibility attributions is an artifact of the measurement techniques employed. Ross and Sicoly (1979) implicitly assumed that if A and B each assign themselves, for instance, 60 percent of the credit for a given product, their attributions of responsibility are egocentric. Each is accepting 60 percent of the responsibility and allocating the other person only 40 percent. This assumption may be invalid: A and B might appreciate the interactive nature of their endeavor; they may think it quite appropriate that the other person take 60 percent of the credit as well (or at least considerably more than 40 percent).

(2) Alternatively, the interactive nature of joint endeavors could contribute to the responsibility biases evinced in past research, yet the attributions may remain egocentric in the sense that the participants fail to recognize that interactions are jointly determined. Each person may take credit for the emergent components and explicitly fail to credit (or underestimate) the other participants' contributions. In its extreme form this implies A accepts credit for A and AB; whereas, A assigns B credit for B only. The basis of such misperceptions could reside in the memorial processes described earlier: the individual's own inputs to the emergent contribution may be more readily available in recall than the inputs of other participants.

The distinguishing feature of the interaction hypothesis is the suggestion that it is the emergent contributions that are susceptible to biasing influences, rather than all types of contributions. Egocentric biases in judgments of responsibility occur because group outcomes are produced, in part, by emergent contributions.

Although the interaction and availability hypotheses predict similar results for the responsibility judgments of participants in interactive groups, the two explanations predict different outcomes if the participants do not interact. When a group outcome is exclusively the product of unique contributions (i.e. coaction groups), the interaction hypothesis predicts no bias in responsibility judgments because there are no emergent contributions. In contrast, the availability hypothesis predicts that there will be an egocentric bias in coaction groups because unique contributions are as susceptible to biasing influences in recall as emergent contributions. Indeed, coaction groups may be expected to produce even stronger biases to the extent that contributions of other group members are less available to the actors in coaction than in interaction groups. One purpose of the present study was to test the viability of the interaction hypothesis by comparing the strength of the bias in responsibility attributions in interaction groups with that in coaction groups.

Nature of the Outcome

The degree of responsibility a person accepts is also related to level of performance. Members of successful groups take more personal responsibility for a group outcome than do members of unsuccessful groups (Bradley, 1978; Forsyth and Schlenker, 1977; Miller, Goldman and Schlenker, 1978; Miller and Ross, 1975; Schlenker, 1975; Schlenker and Miller, 1977).

Past research on judgments of responsibility has used groups which vary in the level of interaction between the group members. Different researchers have also used different methods of assessing responsibility. Schlenker and his colleagues employed groups which are basically coactive in their structure. Typically, subjects were separated from each other by partitions and did not communicate with one another. Subjects made a judgement of responsibility for each group member individually. Since the rating for one group member is relatively independent of that for another, all may be awarded a great deal of responsibility, or all may be awarded very little responsibility, or some may be given a lot and others little responsibility. The effects of performance level on attributions of responsibility have been well explored using Schlenker's procedure. The usual finding is that people award themselves more responsibility following success than following failure.

In contrast, the research of Ross and Sicoly (1979)

used groups which were highly interactive, such as married couples, discussion groups, and basketball teams. These subjects made interpersonal comparisons of responsibility for group outcomes. The Ross and Sicoly measure was sensitive to the distribution of responsibility within the group and not to the absolute amount of responsibility allocated to any one individual. Further, Ross and Sicoly did not systematically vary group outcomes. Rather, they demonstrated that attributions of responsibility were self-centered in the absence of any explicit performance feedback.

The current study employed the Ross and Sicoly (1979) measure to examine the effect of performance level on the distribution of responsibility within coactive and interactive groups. The data from coaction groups will address the findings of Schlenker et al. To the extent that the pattern of results is similar, the generality of their findings is increased. The data from the interaction groups on the other hand will address the effects of performance level not dealt with by Ross and Sicoly.

Predictions

Because success appears to enhance self-centered biases in judgments of responsibility, the strongest test of the interaction hypothesis and the point at which its predictions diverge most sharply from those of the availability hypothesis is in regard to successful groups. The interaction hypothesis predicts stronger self-centered

biases in judgments of responsibility for a group's product in successful interaction groups than in successful coaction groups: the availability hypothesis predicts stronger self-centered biases in coaction groups than in interacting groups, following a success experience.

Previous research suggests that subjects should take greater personal responsibility for the group outcome after success than after failure. There was no a priori reason to believe that the impact of performance level would be affected systematically by group structure.

Method

Subjects

The subjects were 80 male undergraduates whose names were drawn randomly from the undergraduate residence list at the University of Waterloo. The subjects were paid $5.00 to participate in two half-hour sessions.

Procedure

The subjects were scheduled in pairs for the first session. The experimenter explained that he was investigating the relation between structure and efficiency in problem solving groups. The experimenter noted that there was a controversy as to which of two particular group structures is more efficient; working together as a group, or working separately, with each group member having his own duties. This study was portrayed as an attempt to resolve this issue.

Subjects were asked to work on an analogies test during the first session. There were two forms of the test, each with thirty questions on it. One member of the group was given form A and the other form B to work on individually for 12 minutes. Then, for an additional 10 minutes, subjects finished up, reviewed, and changed their answers to any questions they wished, either in consultation with their teammates if they were in the interaction condition or separately if they were in the coaction condition. Pretesting indicated that these time periods were sufficient for subjects in both conditions to finish the test.[1]

Subjects returned individually for the second session one to three days later. The experimenter gave each subject a computer printout which displayed a contrived rank ordering of thirty groups on the analogies task. Each group was randomly assigned to either a high or low ranking. The subject located his own group's rank on the printout. Subjects in success groups found their group in seventh place and subjects in failure groups found their group in twenty-third place. The experimenter made no comment about the ranking.

The subjects were then asked to complete a questionnaire. They were told that a large part of what makes a group efficient is how the group members feel about the task and each other. They were informed that the questionnaire would accordingly assess their perceptions of the task and of the other person in the group along a number of different dimensions. An introductory page on the questionnaire informed subjects that our concern was with group data rather than the responses of particular individuals, that their responses would not be shown to anyone, and that the questionnaire would be identified only by group number. All subjects were fully debriefed after they completed their questionnaires.

Dependent Measures

Attributions of responsibility. Subjects were asked to "Compare how responsible each of you was for the group's final score." Subjects responded by making a slash through

a 50-point line with end points labelled 'self' and 'other.'

Subsidiary measures. Before they were assigned to a group structure, subjects indicated how well they thought they would do in each type of structure. After they had received feedback subjects were asked to indicate how well their group had performed. They were also asked to indicate how much they liked the other person in their group and how much they thought the other person liked them. In addition, subjects in the interaction groups only were asked to indicate the amount of influence they had on the other person, the amount of influence the other person had on them, and to compare the amount each of them talked during the discussion part of their task. All scales were 50-point lines with end-points labelled appropriately. The order in which questions pertaining to 'self' or 'other' were asked was counter-balanced within experimental conditions, and constant within each dyad.

RESULTS

Two (coaction/interaction) X two (success/fail) analyses of variance were performed using the group as the unit of analysis.

Perceived outcome

Subjects responses to the question, "How well did your group do?" were made on a 50-point scale where 0 = terrible and 50 = excellent. Success groups, M = 35.8, reported performing better than fail groups, M = 14.1, F (1, 35) = 352, $p < .0001$. Neither the main effect for group structure nor the interaction between success/fail and group structure approached significance, F's < 1.

Replication of previous findings

The amount of responsibility each member gave himself was summed across the dyad. Since the response scale was 50 points long, there were 50 "units of responsibility" to be allocated. The amount by which the sum for 'self' within the group exceeds 50 is the amount of self-centered bias in perceived contribution within the dyad. Twenty-nine of the 40 dyads participating in this study made self-centered responsibility judgments according to this definition, X^2 (1) = 8.1, $p < .01$. The overall mean bias (M = 2.9) also indicates that subjects took more responsibility for themselves than the other group members gave them. A t-test against zero showed the mean bias to be statistically significant, t (39) = 2.20, $p < .05$. The Ross and Sicoly (1979) finding was thus replicated; consequently the task

and setting used in the present study are adequate to examine the processes mediating egocentric biases in responsibility attributions.

Test of the Availability and Interaction Hypotheses

The means and analysis of variance for the bias in responsibility measure are shown in Table 1. The analysis revealed a significant main effect for outcome and a significant outcome x group structure interaction. The results in the success condition support the availability hypothesis: the mean amount of bias was greater in coaction-success groups than in interaction-success groups, t (18) = 2.60, $p < .025$.

Insert Table One About Here

Effects of Performance Level

Inspection of the means in Table 1 reveals that performance level affected attributions of responsibility only in the coaction groups. Further, simple effects analyses indicated that the coaction-success cell differed significantly from the other three, which did not differ from each other. Subjects in the coaction fail groups showed a mean alter-centric bias, but this mean was not significantly different from zero, $t < 1$.

Subsidiary measures

According to the availability hypothesis, participants estimates of inputs to the group are egocentrically biased.

If this is true, then participants responses to other measures which reflect inputs may also show a self-centered bias. Two such measures obtained in the current study were "perceived influence" and "amount talked." Since coaction group participants were not permitted to communicate with each other, the analysis of these two measures is restricted to data from interaction groups.

The bias in perceived influence for each dyad was derived by calculating the mean amount of influence subjects thought they had on others and subtracting from this the mean amount of influence they thought the other had on them. The results revealed that subjects thought that they had influenced the other significantly more than they had been influenced by him, $\underline{M} = 4.4$, $\underline{t}\ (19) = 2.52$, $\underline{p} < .01$. The difference between the success and fail conditions was nonsignificant, $\underline{t}\ (18) = 1.15$, $\underline{p}$ = n.s.

The relative amount participants thought they had talked was measured as a second general category of inputs. Group members were asked to "compare the amount each of you talked during the discussion part of your task," by placing a slash through a 50-point line with end points labelled 'self' and 'other.' Bias scores for this variable were calculated the same as they were for responsibility judgments, by comparing the sum of the group's responses for self to the total line length. Group members recalled talking more than their partners recalled them as talking, $\underline{M} = 8.8$, $\underline{t}\ (19) = 3.77$, $\underline{p} < .01$. The difference between

success and fail groups was, again, nonsignificant, t (18) = 1.21, p = n.s.

Other Possible Determinants of Judgments of Responsibility

If subjects have some knowledge of how well they really did, then differences in responsibility judgments could reflect differences in actual performance between conditions. This alternative can be eliminated, however: the mean number of correct answers did not vary as a function of experimental condition, all F's < 1. In addition, the mean correlation between the bias in responsibility for the final score, and the actual score was r (32) = .1?, p = n.s. Differences in actual performance cannot account for the findings.

It could be argued that subjects in interaction groups liked each other more than subjects in coaction groups and that liking influences attribution of responsibility. Neither performance level nor group structure affected the amount subjects liked their partner or the amount subjects thought their partner liked them, however, F's < 1.

Another possible determinant of responsibility judgments could be differential expectations of performance as a result of group structure. Perhaps subjects anticipated performing better in one group structure than in the other and this expectation influenced their responsibility judgments. Before they were assigned to conditions, subjects rated how well they thought they would perform in each type of group structure. Subjects expected

to do somewhat better in interaction groups than in coaction groups, t (39) = 1.76, $p < .10$. If a difference in expectations mediated subjects' responsibility judgments, then this should be reflected in a correlation between the two variables. The mean within-cell correlation was negligible, r (32) = -.14, p = n.s., indicating that differential expectations did not relate to judgments of responsibility.

DISCUSSION

The first question concerning the relative merits of the availability and interaction hypotheses, as they relate to self-centered biases in attributions of responsibility, seems answered. The attribution of responsibility data in the successful groups provide evidence against the interaction hypothesis. Self-centered biases were stronger in the coaction condition, despite the lack of emergent contributions.

The second question this study addressed concerned the effect of performance level on self-centered biases in judgments of responsibility. Perhaps the most surprising finding was that the effects of performance level depended on the structure of the dyad. In coaction groups, the impact of performance level was quite marked, success producing a strong self-centered bias in responsibility attributions and failure producing essentially no bias. In contrast, interaction groups showed no significant effects of performance level on attributions of responsibility,

attributions of influence within the group, and estimates of amount talked.

Should we attribute the lack of a success/fail effect in interaction groups to differences between our method of measuring responsibility and those of other researchers? The answer is probably no. The data from our coaction groups are similar to that obtained by Schlenker et al.

An alternative explanation for the effect of group structure that we find compelling is that the interaction between the group members provided a type of reality-testing. The group members had an opportunity to talk to each other and see each other at work. This may have prevented them from assuming that their own contributions were superior. As a result, subjects in the interaction groups were less inclined to take responsibility for success or to avoid responsibility for failure than were subjects in the coaction groups.

The interaction-coaction dimension is, of course, continuous rather than dichotomous. The interaction condition employed in the present study contained coactive elements. Similarly, some in vivo groups are highly interactive while others are less so. There has been a tendency to focus on the coaction end of this continuum in previous laboratory research on the impact of performance level on attributions of responsibility. The use of coactive groups has definite experimental advantages; for example, the data from individual subjects can be considered

to be independent. The present research suggests, however, that group structure can alter the effects of performance level on attributions of responsibility. Hence we need to take group structure into account in generalizing the results obtained from laboratory groups to groups in the real world.

Footnote

1. In pretesting, we employed some groups in which subjects interacted for the entire time period. These groups took longer to complete the task than coaction groups. The degree of interaction employed in the study proper was designed to produce approximately equivalent performance across conditions.

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Table 1

Mean bias in judgment of responsibility for the group's final score

Outcome	Group Structure: Coaction	Group Structure: Interaction
Success	10.5 [a]	1.1 [b]
Fail	-1.8 [b]	1.9 [b]

The n per cell is 10 groups.
Positive numbers indicate an egocentric bias.
Means not sharing a common subscript differ at $p < .05$.

Analysis of Variance

Source	SS	df	MS	F	prob.
Outcome	33.58	1	33.58	6.769	0.013
Structure	7.87	1	7.87	1.586	0.216
Outcome X Structure	42.84	1	42.84	8.635	0.006
Residual	178.59	36	4.96		
Total	262.88	39	6.74		

The group was the unit of analysis.